

WHAT IS CLAIMED IS:

1. An intelligent mode-selection system for an electrosurgical instrument comprising:

(a) an electrosurgical instrument capable of receiving a plurality of control signals for selecting an operating mode, each of said control signals when received by the electrosurgical instrument being capable of placing the instrument into one of a plurality of operating electrosurgical modes,

(b) a handpiece for connection to the instrument and comprising multiple fingerswitches and having an output,

(c) component means in the handpiece each connected to one of the fingerswitches for generating, when supplied with current and when a fingerswitch is activated, at the handpiece output one of a plurality of control signals, each of the control signals being associated with one of the plurality of operating electrosurgical modes,

(d) means on the handpiece for holding an electrode for delivering one of a plurality of RF electrosurgical currents each representative of one of the instrument's operating modes,

(e) means on the handpiece for outputting control signals to the electrosurgical instrument in response to the activation of the fingerswitches for selecting one of the operating modes,

(f) means in said instrument in response to receipt of the control signals from the handpiece for supplying to the electrode RF electrosurgical currents in the selected mode.

2. An intelligent selection system for an electrosurgical instrument as claimed in claim 1, further comprising a microcontroller for controlling the instrument and a storage system in the electrosurgical instrument, said storage system being capable of storing preset information representative of the plurality of operating modes and in response to any one of the control signals outputting control information, said microcontroller in response to the control information controlling the instrument such that the instrument is placed in the operating mode associated with the activated fingerswitch.

3. An intelligent selection system for an electrosurgical instrument as claimed in claim 1, further comprising a microcontroller for controlling the instrument in the electrosurgical instrument and software for controlling the microcontroller, said software being capable of executing preset routines representative of the plurality of operating modes and in response to any one of the control signals controlling the operation of the microcontroller such that that routine is executed that places the instrument in the operating mode associated with the activated fingerswitch.

4. An intelligent selection system for an electrosurgical instrument as claimed in claim 1, wherein each operating mode produces a selected one of cut, cut/coag, or hemo electrosurgical currents to the electrode.

5. An intelligent selection system for an electrosurgical instrument as claimed in claim 1, wherein each operating mode produces a selected one of a plurality of electrosurgical current output powers to the electrode.

6. An intelligent selection system for an electrosurgical instrument as claimed in claim 5

wherein each operating mode also produces a selected one of a plurality of time durations of electrode currents to the electrode.

7. An intelligent selection system for an electrosurgical instrument as claimed in claim 1, further comprising a family of handpieces each comprising an electrode integral with the handpiece, the electrode of each handpiece being customized for performing particular medical procedures, means in said instrument in response to receipt of the control signals from each of the handpieces of the family for supplying to the integral electrode RF electrosurgical currents in a selected mode customized for the procedure for which the handpiece is customized.

8. An intelligent selection system for an electrosurgical instrument as claimed in claim 1, wherein each of the handpieces are color-coded or shaped to represent a particular procedure.

9. An intelligent selection system for an electrosurgical instrument as claimed in claim 1, further comprising means interconnecting the handpiece and instrument for supplying a control current to the fingerswitches.

10. An intelligent selection system for an electrosurgical instrument comprising:

(a) an electrosurgical instrument in response to one of a plurality of control signals for generating a selected one of a plurality of operating electrosurgical modes, each of the operating modes being associated with one of the control signals,

(b) a handpiece for connection to the instrument and comprising multiple fingerswitches,

(c) different component means in the handpiece each connected to one of the fingerswitches,

(d) means interconnecting the handpiece and instrument for supplying a control current to the fingerswitches,

(e) means in the handpiece connected to each of the component means for generating different control signals when supplied with the control current,

(f) means on the handpiece for receiving and holding an electrode for delivering one of a plurality of RF electrosurgical currents each representing one of the operating modes,

(g) means on the handpiece for outputting control signals to the electrosurgical instrument in response to the activation of the fingerswitches,

(h) means in said instrument in response to receipt of the control signals from the handpiece to supply to the electrode RF electrosurgical currents in the selected mode.

11. A handpiece according to claim 10, further comprising an electrical connector comprising terminals and connected at a side of the housing, the different control signals being available at the same connector terminal.

12. A handpiece according to claim 11, wherein the electrical connector comprises three terminals, one of which is connected to the electrode and the other two of which are connected to the fingerswitches.

13. A handpiece according to claim 10, wherein the control currents are DC currents.

14. A handpiece according to claim 10, wherein the control currents are AC currents at a lower frequency than that of the RF electrosurgical currents.

15. A handpiece according to claim 10, wherein the different component means comprises small impedances.

16. A handpiece for connection to electrosurgical apparatus and comprising fingerswitches for selectively providing cutting mode or coagulation mode electrosurgical currents from the electrosurgical apparatus to an electrode connected to the handpiece, said handpiece comprising:

(a) a pencil-like housing,

(b) at least first and second fingerswitches on the housing,

(c) means on the housing for receiving and holding an electrode for delivering RF electrosurgical currents,

(d) means connected to the housing for supplying a control DC or AC current to the fingerswitches,

(e) means connecting the fingerswitches such that when the first fingerswitch is activated a first DC or AC current level is established and when the second fingerswitch is activated a second DC or AC current level is established,

(f) said first and second DC or AC current levels being usable to select, respectively, first and second operating modes of the electrosurgical apparatus.

17. A handpiece according to claim 16, further comprising an electrical connector comprising three terminals and connected at a side of the housing, one of the three terminal being connected to the electrode and the other two of the three terminals being connected to the fingerswitches, the first and second current levels being available at the same connector terminal.

18. A handpiece according to claim 16, wherein the handpiece comprises 3 finger switches.

19. A handpiece according to claim 16, further comprising an electrode fixed to the handpiece, the electrode being associated with the selected operating mode.

20. A handpiece according to claim 19, wherein the RF electrosurgical currents are in the megacycle range, and the control current is a DC or AC current in the kilocycle or lower range, and the electrode is molded to the handpiece.

21. A handpiece according to claim 16, further comprising a non-volatile read or read/write memory in the handpiece, said memory storing data items representing operating modes of the electrosurgical apparatus.

22. A procedure-specific handpiece for connection to electrosurgical apparatus for providing one of cutting mode or coagulation mode electrosurgical currents from the electrosurgical apparatus to an electrode connected to the handpiece, said handpiece comprising:

(a) a pencil-like housing,

(b) means on the housing for receiving and holding an electrode for delivering RF electrosurgical currents,

(c) means in the handpiece for providing a control signal to the electrosurgical apparatus when activated,

(d) said control signal representing for the electrosurgical apparatus operating mode information associated with the specific procedure and usable by the electrosurgical apparatus to select an operating mode specific to the procedure.

23. A handpiece according to claim 22, further comprising an electrode fixed to the handpiece, the electrode being associated with the specific procedure.

24. A handpiece according to claim 23, wherein the RF electrosurgical currents are in the megacycle range, and the electrode is molded to the handpiece.

25. A handpiece according to claim 22, further comprising a non-volatile read or read/write memory in the handpiece, said memory storing data items representing an operating mode of the electrosurgical apparatus specific to the procedure.

26. In combination:

a) an electrosurgical apparatus comprising a microcontroller and being capable of being switched via the microcontroller from a cutting mode to a coagulation mode and vice versa upon the inputting of mode selection signals to the microcontroller, said electrosurgical apparatus when in the cutting mode generating RF electrosurgical currents capable of performing a cutting operation when applied via an electrosurgical electrode and when in the coagulation mode generating RF electrosurgical currents capable of performing a coagulation operation when applied via the electrosurgical electrode,

b) a handpiece for connection to the electrosurgical apparatus and comprising fingerswitches for selectively providing cutting mode or coagulation mode electrosurgical currents from the electrosurgical apparatus to an electrode connected to the handpiece, said handpiece comprising:

(i) a housing,

(ii) at least first and second fingerswitches on the housing,

(iii) means on the housing for receiving and holding an electrode for delivering RF electrosurgical currents,

(iv) means connected to the housing for supplying a control current to the fingerswitches,

(v) means connecting the fingerswitches such that when the first fingerswitch is activated a first current level is established and when the second fingerswitch is activated a second current level is established,

c) said first and second current levels serving as the control signals and being usable by the microcontroller to select an operating mode of the electrosurgical apparatus.

27. The combination according to claim 26, wherein the electrosurgical apparatus comprises a database or look-up table connected to the microcontroller, the control signal representing a key to one of plural records in the database or look-up table, each of the records representing an operating mode of the electrosurgical apparatus.

28. The combination according to claim 26, wherein the means of claim element b)(v) comprises a small impedance.

29. The combination according to claim 26, further comprising a non-volatile memory in the handpiece and accessible from the microcontroller.

30. The combination according to claim 28, wherein the small impedance has a value of about 100 ohms.

31. The combination according to claim 26, wherein the RF electrosurgical currents are in the megacycle range, and the control current is an AC current in the kilocycle or lower range.